An Overview of Pandemic Flu

What It is, What It May Mean, What to Do

Camp Funston, Kansas, 1918 or 1919
Source: U.S. National Museum of Health and Medicine, Armed Forces Institute of Pathology

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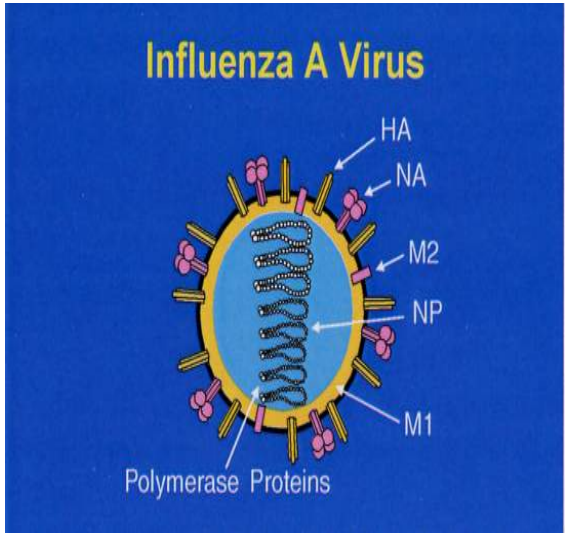
Outline

- Influenza explained
- Effects of influenza pandemics
- Limiting pandemic effects
- What is being done by Federal, State, local governments and private sector
- What you can do

American Red Cross photo http://ibiblio.org/hyperwar/AMH/XX/WWI/flu/flu1918/flu1918-4.jpg

What is influenza?



- A highly contagious respiratory infection of the nose, throat and sometimes the lungs caused by influenza virus

- Yearly winter (seasonal) epidemics
  - Commonly occur December to March in Northern hemisphere

How does influenza spread?

Photo source: U.S. DoD
(http://www.pdhealth.mil/influenza.asp)

- Respiratory droplet—*definitely*
  - Sneezing, talking, coughing, laughing
    - produce virus in small fluid droplets
  - Droplets (> 10 microns) "drop" to ground at 3-6 feet
  - ∴ transmission occurs within 3-6 feet
- Airborne—*possibly*
  - Tiny particles containing virus (< 5 microns)—suspended in air, sometimes for hours
  - Airborne infections are difficult to prevent
- Contact—*definitely, less common*
  - "Contaminated" hands to eyes, nose, mouth:
  - Influenza virus
    - survives on nonporous surfaces for 24-48 hours
    - transferable to hands for 24 hours
    - transferable from tissues for 15 min

(Bridges, CID, 2003)

What happens when people are exposed to seasonal influenza virus?

- Illness can start in about 2 days (range 1-4) after one is exposed to influenza virus
- People MAY be able to pass influenza virus to others for 1 day before they feel sick
- Symptoms include fever, cough, runny nose, sore throat, extreme tiredness, headache and body aches
- Illness can be severe if complications
  - Worsening of other health conditions
  - Pneumonia
  - Death (mostly in elderly)

How is seasonal influenza treated?

- General recommendations are to rest, drink fluids, and treat symptoms with drugs like acetaminophen or ibuprofen
- Influenza antiviral drugs
  - Can shorten illness when used for treatment
  - Must start them within 2 days of onset of symptoms
  - Can prevent complications and hospitalizations
  - Require a prescription

Who is most likely to be severely ill from seasonal influenza?

- Groups most likely to have severe illness
  - Elderly
  - Young children
  - Pregnant women
  - Persons with chronic health problems
    - Heart or lung disease, for example

www.pbs.org

(Neuzil, Arch Ped Adol Med, 2002; ACIP, MMWR, 6/28/06; Podewils, CID, 2005; EIN survey (2003-4; Dushoff, AJE, 2006; Poland, Vaccine, 2005)

How can I avoid getting seasonal influenza?

- Vaccine (the best way to prevent)
- Antiviral drugs
- Other ways
  - Avoid people who are sick
  - Wash hands
  - Keep hands away from face

What is the toll of seasonal influenza?

- 36,000 estimated deaths per year in US
  - Most deaths in persons 65 and older
- More than 225,000 hospitalizations per year in US
  - One half of hospitalizations in persons 65 and older

Who should get vaccine for seasonal influenza?

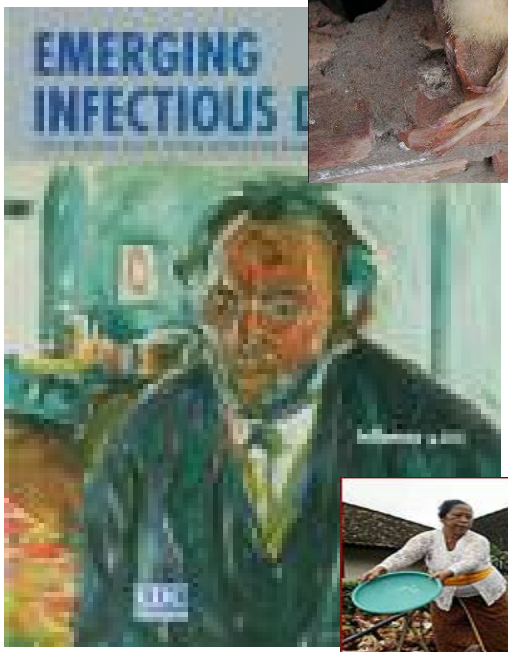
- **Anyone who wants to decrease their risk of influenza**
- Especially important for
  - People 65 years and older
  - Those with chronic diseases
  - Children less than 5 years
  - Pregnant women
  - Persons in nursing homes or long term care facilities
  - Household members and caregivers of the above groups
  - Health care workers

What other measures can be used to prevent spread of influenza in a community?

- Obtain high influenza vaccination rates
- Dispense antiviral medications for treatment and prevention

Pandemic Influenza

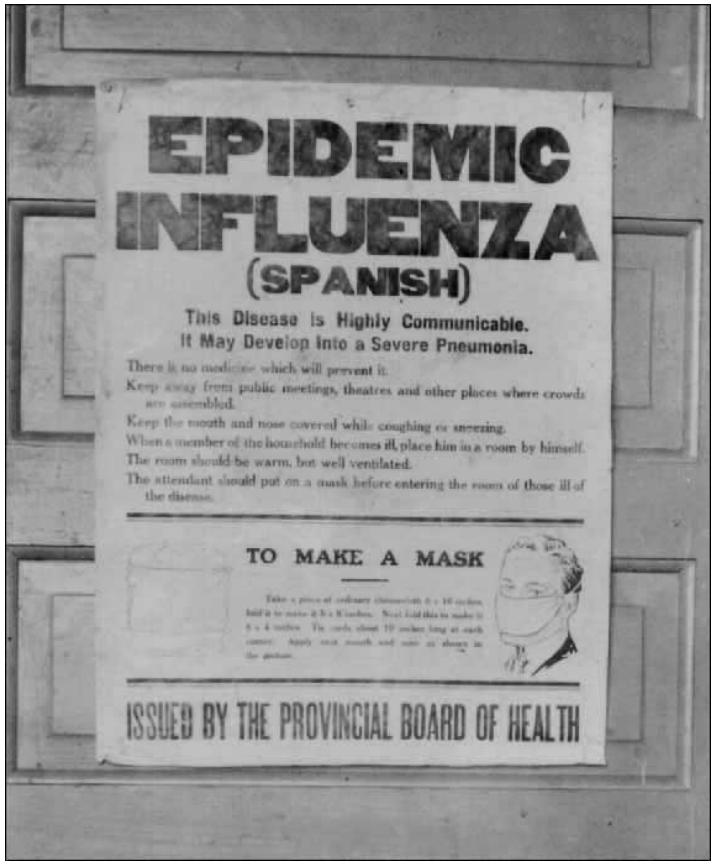
- Definition
- 1918 Pandemic
- Influenza A/H5N1



Scott Harper, CDC, NVAC/PIWG presentation, April 20, 2005 and CDC: *Emerging Infectious Disease* cover vol 9 no 3, March 2003.

What is an influenza pandemic?

- **An influenza pandemic occurs when**
  - There is a major change in the influenza virus
  - Everyone is susceptible
  - Seasonal vaccination does not provide protection
- **Compared to annual seasonal influenza, a pandemic**
  - Spreads rapidly throughout the world
  - Causes increased illness and deaths
  - May cause severe disease in groups not typically at high risk
- **The timing of a pandemic is unpredictable**



Is flu in a pandemic the same as seasonal flu?

- Initial symptoms may be the same BUT…
- Higher numbers of infections are expected
  - One in every three persons could become ill
- Higher rates of deaths and hospitalizations expected

Are the same people at risk of severe influenza illness in a pandemic?

- The same persons at risk of severe seasonal influenza will likely be at risk for severe pandemic disease, e.g. elderly
- BUT, additional groups may also be at high risk of severe disease
  - 20-40 year old adults were at high risk in 1918
- High risk groups may not be able to be predicted in advance

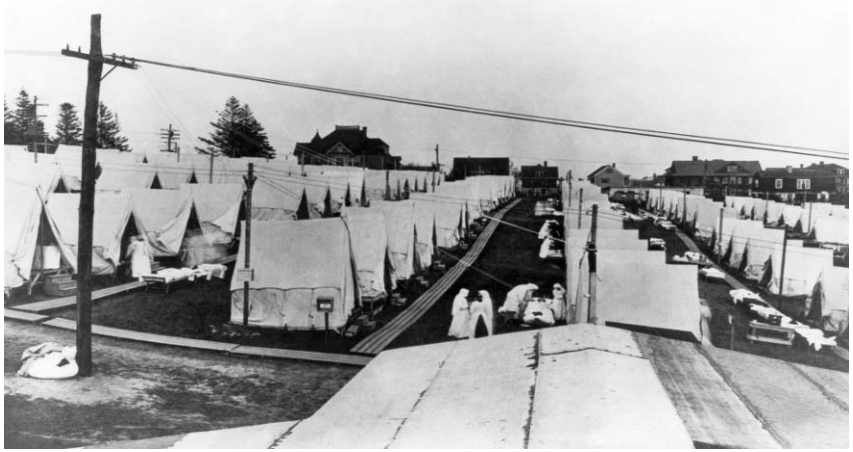
How often do pandemics occur?

Year	Strain	US Deaths	Global Deaths
1968	Hong Kong Flu H3N2	34,000	1 to 4 million
1957	Asian Flu H2N2	70,000	1 to 4 million
1918	Spanish flu H1N1	675,000	50-100 million

Camp Funston, Kansas, 1918 or 1919.

Source: US National Museum of Health and Medicine, Armed Forces Institute of Pathology

1918 Influenza Pandemic



Source: Public Health Image Library, CDC

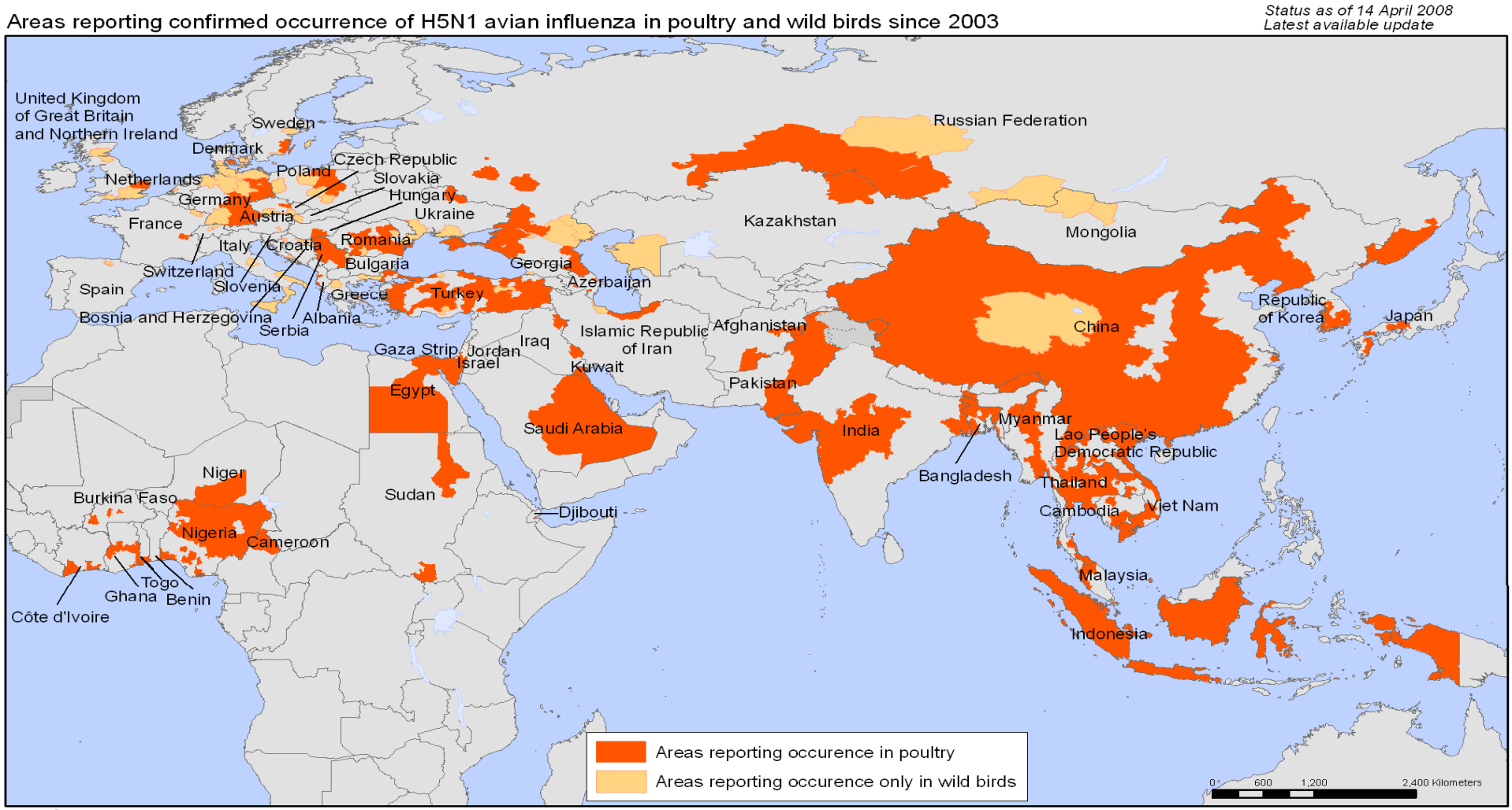
The 1918 influenza pandemic:

- Began with a relatively mild unusual spring flu outbreak -- 1918
- Deadly flu returned in August-September of 1918 in U.S. and Europe
- Devastated the WWI military: rampant in military camps here and abroad
  - killed 1/47 of all members of the military in 1918-1919
- Disrupted communities, huge economic losses, strained community resources.
- Killed 500,000 to 675,000 persons in the United States (~ 2.5% mortality)
- Led to an unusually high death rate among otherwise healthy young adults
- Waves of influenza illness recurred in communities until 1920

When will the next pandemic occur?

- No one can predict for certain
- Influenza H5N1—a “bird flu”— is causing illness and deaths among poultry and birds in Asia, Africa and Europe
  - limited cases in people have increased concern that it could lead to a human pandemic
- H5N1 is not a pandemic virus now because it cannot be easily passed from person to person
  - H5N1 could possibly change so that it could be easily passed from person to person
  - this would cause a pandemic
- Other influenza viruses besides H5N1 are also of concern

Areas with confirmed cases of H5N1 influenza in birds (April 14, 2008)



World Health Organization

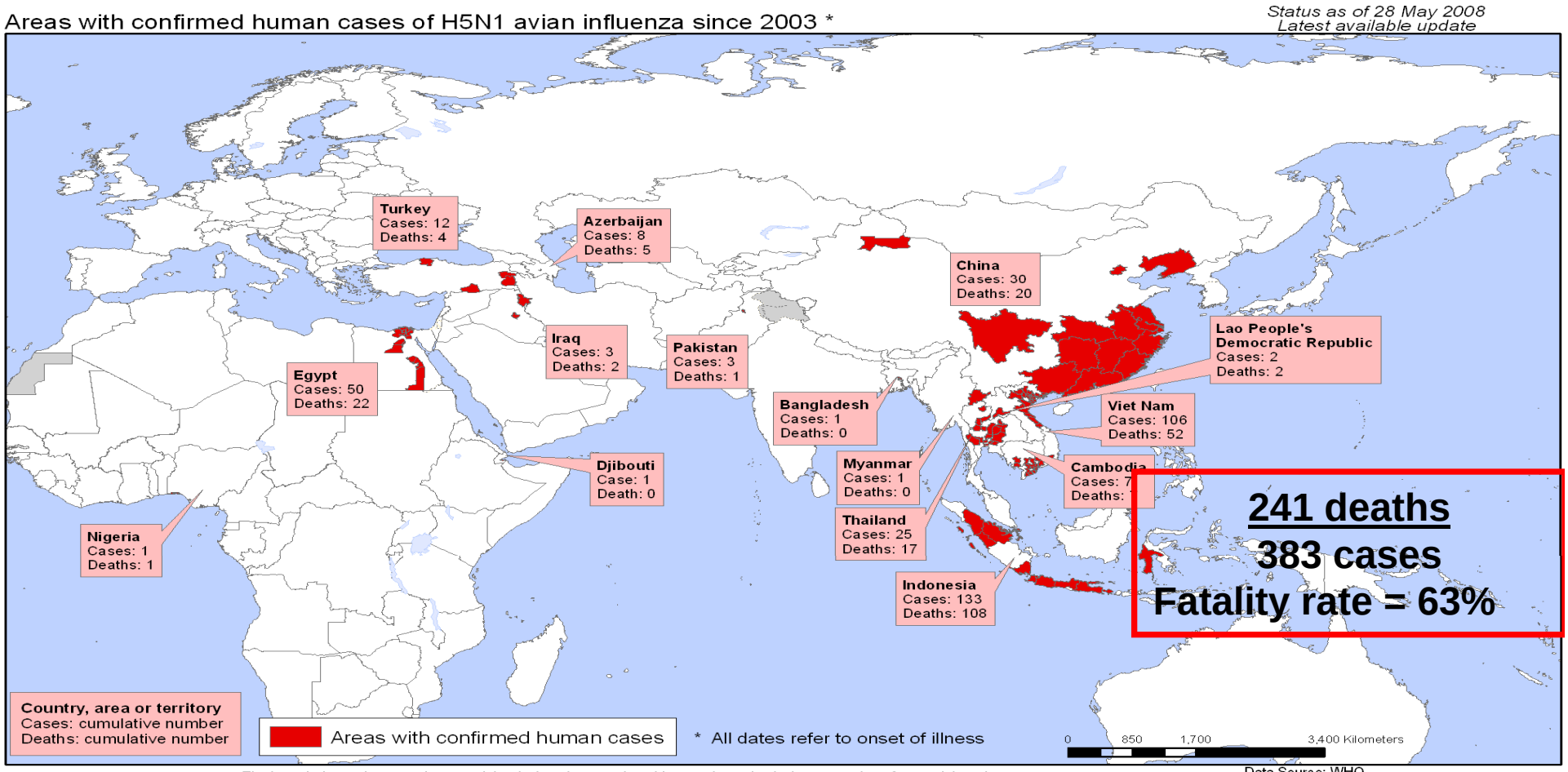
The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Organisation for Animal Health (OIE) and national governments

Map Production: Public Health Mapping and GIS
World Health Organization

http://gamapserver.who.int/mapLibrary/app/searchResults.aspx

Areas with confirmed cases of H5N1 influenza in people (May 28, 2008)



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How has influenza A H5N1 been transmitted to humans?

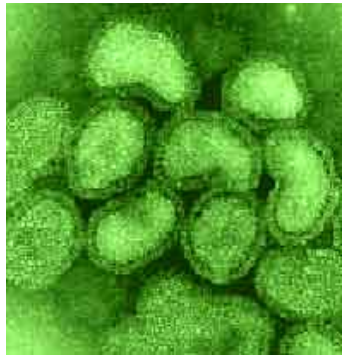


Photo source: U.S. DoD
(http://www.pdhealth.mil/influenza.asp)

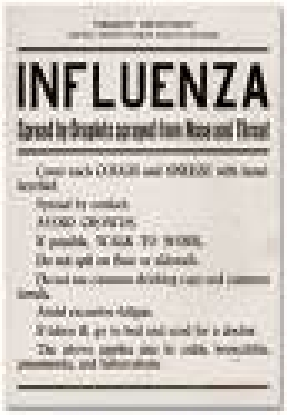
- Contact with infected wild birds or poultry
  - Handling sick or dying birds
  - Contact with bird excrement
  - Contact with water contaminated with bird excrement
- Person to Person?
  - Very close, intense contact with very ill patients in a few cases

What kind of impact could the next pandemic have?

- No one can predict the impact with certainty
- 1918 pandemic was the most deadly event in US history
- 1968 pandemic was not much more serious than a bad seasonal influenza year
- The number of US deaths from the next pandemic could range from 200,000 up to 2,000,000

What could a severe pandemic look like?

[U.S. Government Assumptions]



- 30% of population could be ill
- 50% of ill persons could seek health care
- Absenteeism could be 40% at peak
- Waves of illness could last 6 to 8 weeks
  - several waves might occur
- Entire pandemic event could last 12 to 18 months
- In the worst case (like 1918) → deaths, illness, massive societal/economic disruption
- Pandemic vaccine—6 months to first available doses
- Antiviral drugs—may or may not be effective

U.S. Dept HHS: Potential Scenarios for an Influenza Pandemic

Characteristic	Moderate (like 1957 or 1968)	Severe (like 1918)
Illness	90 million (30%)	90 million (30%)
Outpatient Care	45 million (50%)	45 million (50%)
Hospitalization	865,000	9,900,000
ICU Care	128,750	1,485,000
Mechanical Ventilation	64,875	742,500
Deaths	209,000	1,903,000

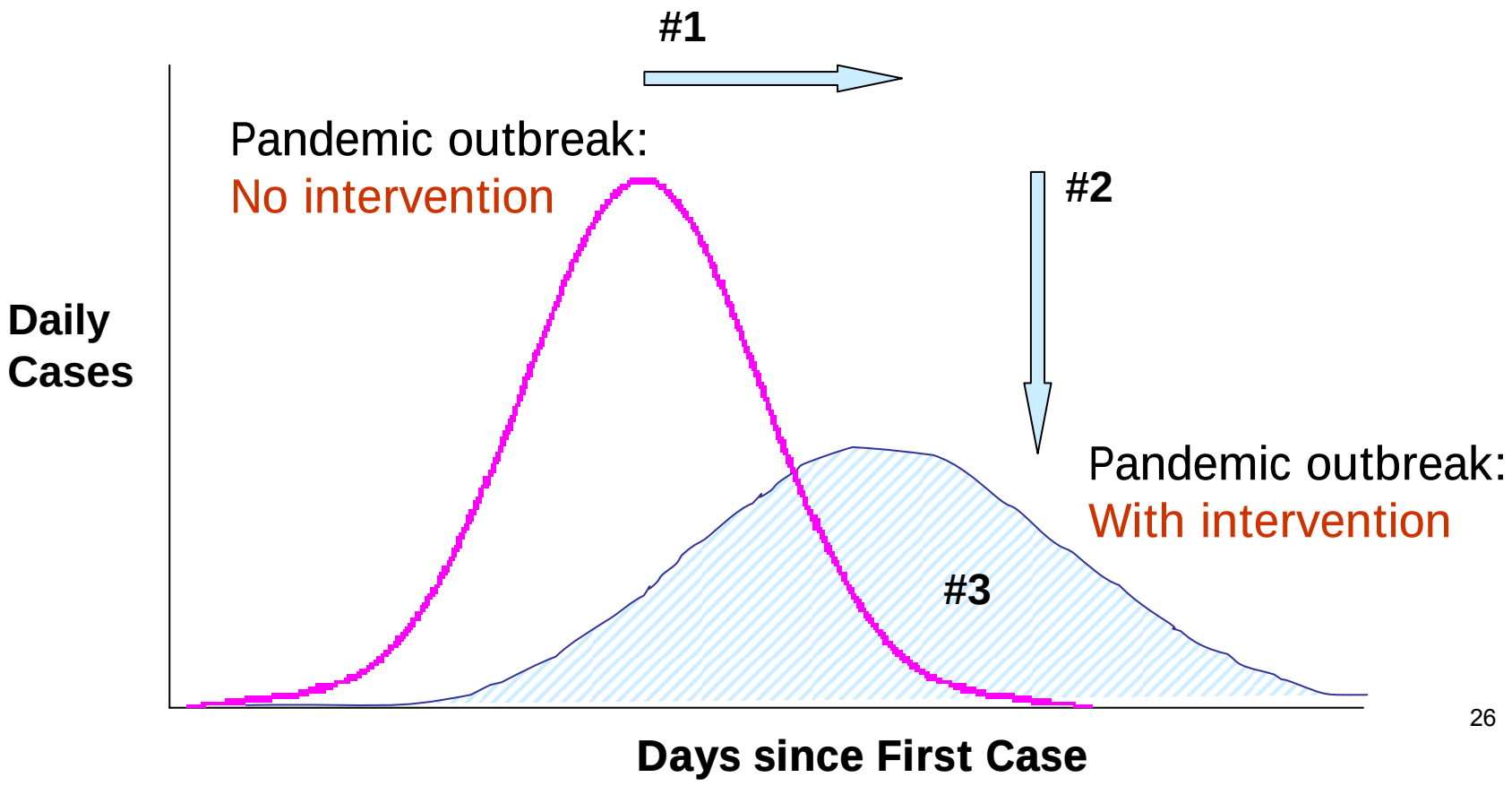
HHS Plan Assumptions http://www.hhs.gov/pandemicflu/plan/part1.html#2

Managing an Influenza Pandemic

VA Photo: North Texas VAMC ‘drive thru’ flu shot clinic, 2006

Goals of pandemic containment strategies

1. Delay outbreak peak
2. Decompress peak burden on hospitals / infrastructure
3. Diminish overall cases and health impact



What might work to control a pandemic and protect people?

- Vaccine (when available)
- Antiviral medications
- Community mitigation strategies

Tools to prevent an influenza pandemic

- **Pandemic Vaccine**
  - Likely unavailable during the first wave of a pandemic
  - As supplies build → prioritization

US Draft Pandemic Vaccine Prioritization

•Everyone in US is included in one of these 4 groups:

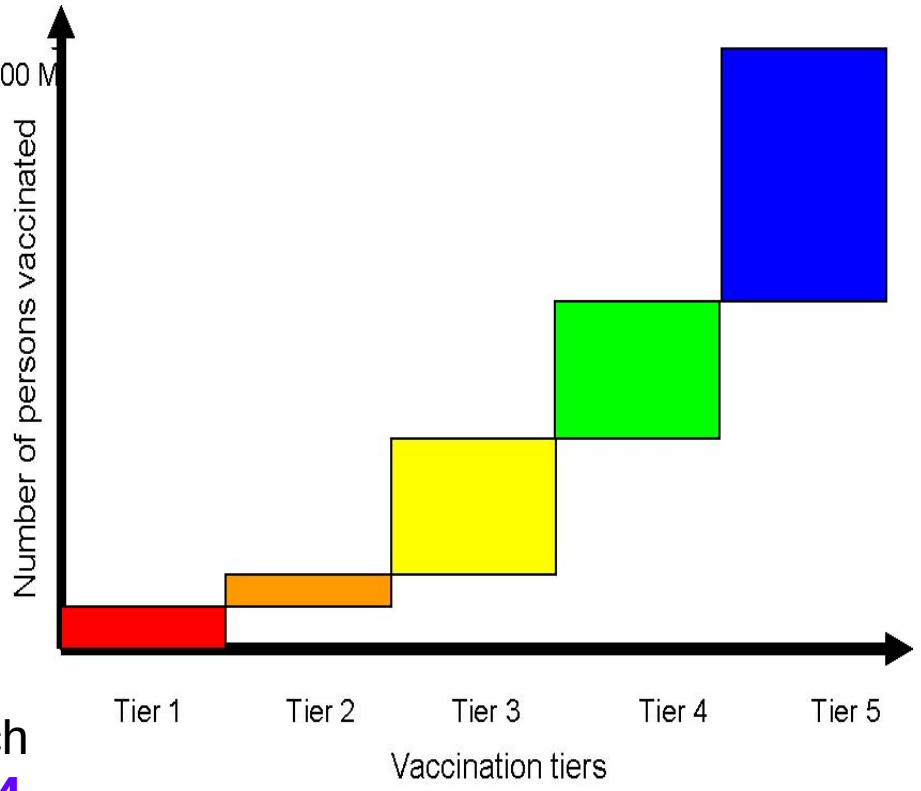
Homeland & National Security	Health Care & Community Services	Critical Infrastructure	General Population

•The 4 groups are divided into 5 tiers →

•**Tier 1** of each group is vaccinated first

•**For example, Tier 1** of

- •Homeland & National Security includes
  - •**deployed military**
- •Health Care & Community Services includes
  - •**front line health care providers**
- •Critical Infrastructure includes
  - •**law enforcement, public safety, and critical utilities**
- •General Population includes
  - •**pregnant women**



•As more vaccine is available, **Tier 2** of each group is vaccinated, then **Tier 3**, next **Tier 4**

•**Eventually, every individual receives vaccine**

Draft plan available at: http://www.pandemicflu.gov/vaccine/prioritization.html

Tools to prevent an influenza pandemic

- **Pandemic Vaccine**
  - Likely unavailable during the first wave of a pandemic
  - As supplies build → prioritization
- **Antiviral medications**
  - Supplies growing
  - Efficacy / Resistance
  - Challenging distribution logistics

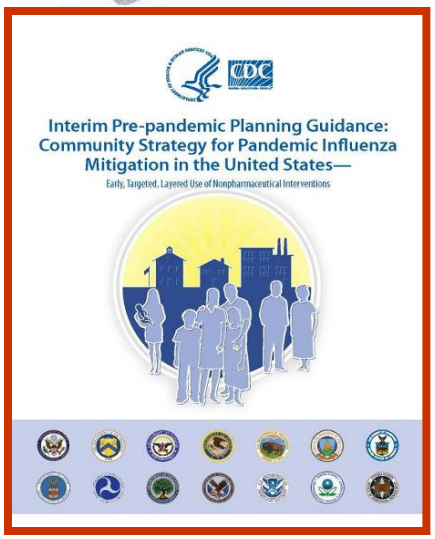
US Draft Antiviral Use Guidance

- Stockpile sufficient quantities to
  - Contain outbreaks overseas and in the US
  - Give to potentially exposed persons at entry to US
  - Treat persons with pandemic illness who present for care early during their illness
  - Give for the duration of outbreak as preventive to high-risk health care workers and emergency services personnel
  - Give as a preventive to
    - exposed health care and emergency services workers (those not on long term prophylaxis)
    - persons with compromised immune systems
    - persons living in group settings such as nursing homes and prisons if an outbreak occurs at that facility
- Other considerations for prevention:
  - Give to household members of ill persons (but not recommended in this draft)
- Draft guidance is available for general comment until July 3, 2008 at http://aspe.hhs.gov/panflu/antiviraluse.html

VA's Current Antiviral Stockpile Goals

- Stockpile sufficient quantities to
  - Treat ill patients and staff
  - Give as preventive for the duration of the outbreak to high risk health care staff and critical workers
  - Give as preventive to
    - exposed patients, health care and critical workers (those not on long term prophylaxis)
    - persons with compromised immune systems
    - persons living in group settings (such as nursing homes) if an outbreak occurs at that facility

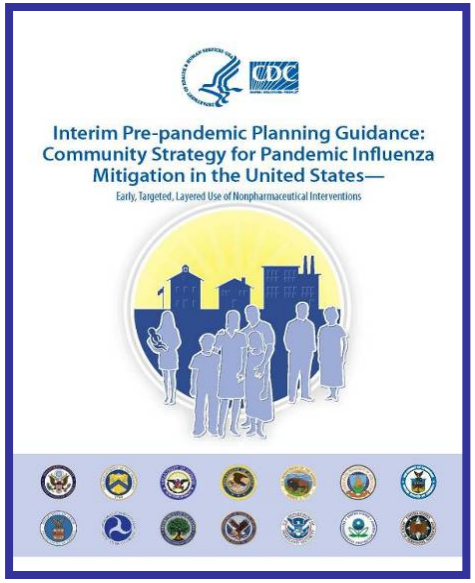
Tools to prevent an influenza pandemic



- **Pandemic Vaccine**
  - Likely unavailable during the first wave of a pandemic
  - As supplies build → prioritization
- **Antiviral medications**
  - Supplies growing
  - Distribution logistics
  - Efficacy / Resistance
- **Community mitigation strategies**
  - Applied by pandemic severity

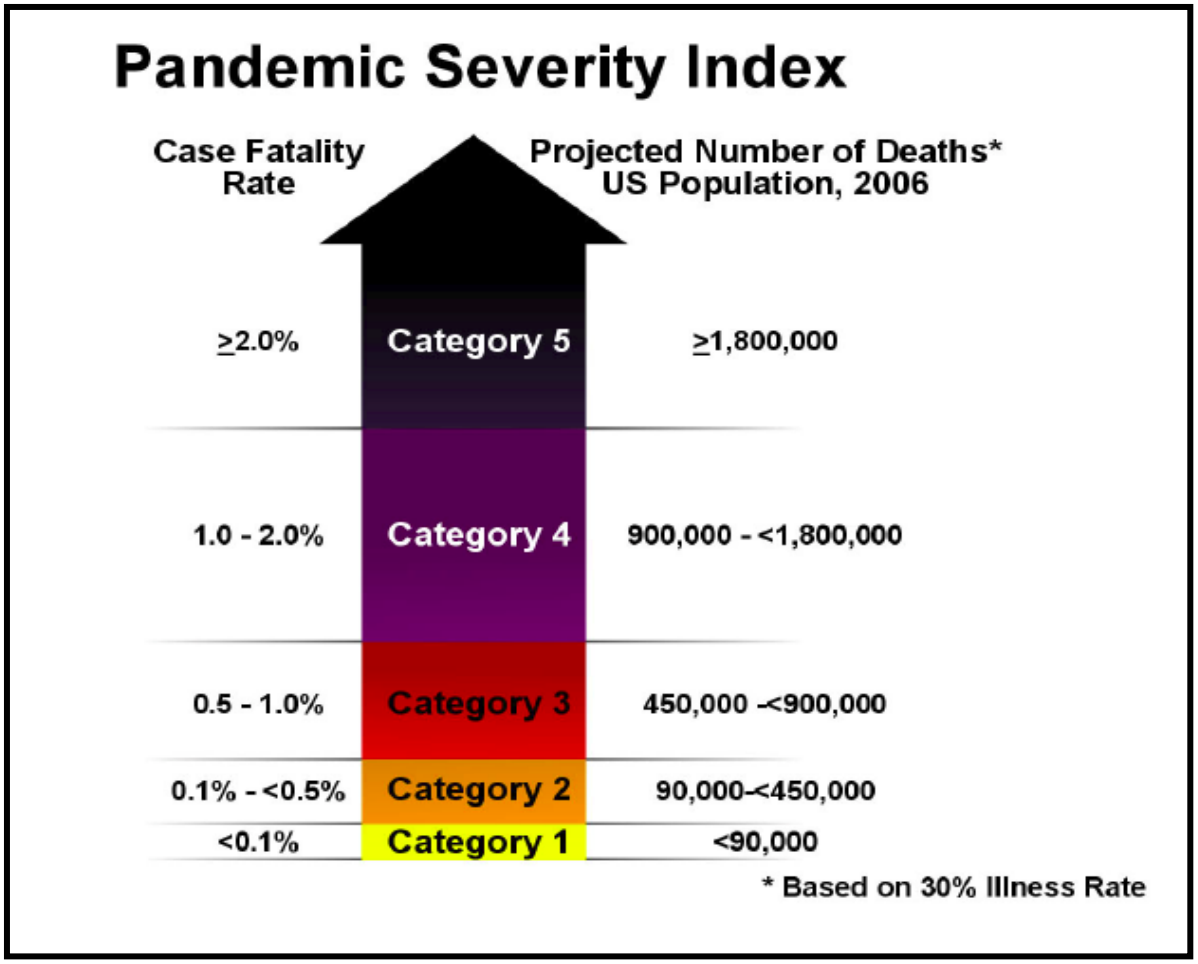
Community Mitigation Strategies

1. **Voluntary isolation of ill persons**
2. **Voluntary quarantine –** household members
3. **Treat ill**; provide preventive antivirals for household members
4. **Social distancing**
   - Children: close schools, keep
   - children + teens from congregating
   - Adults: encourage telework,
   - cancel/postpone public
   - gatherings, stagger schedules
5. **Hand and respiratory hygiene: everyone**
6. **N95 Respirators: high risk occupations**
7. **Facemasks: medium risk (high contact w/ public)**
8. **Facemasks: ill persons; when in crowds**



http://www.pandemicflu.gov/plan/community/commitigation.html

When do we implement community mitigation strategies?



We would respond differently for a Category 5 than for a 1.

http://www.pandemicflu.gov/plan/community/commitigation.html

Community Mitigation Strategy by Pandemic Flu Severity

Interventions by Setting	Pandemic Severity Index		
	1	2 and 3	4 and 5
Home			
Voluntary isolation of ill at home (adults and children); combine with use of antiviral treatment as available and indicated	Recommend	Recommend	Recommend
Voluntary quarantine of household members in homes with ill persons (adults and children); consider combining with antiviral prophylaxis if effective, feasible, and quantities sufficient	Generally not recommended	Consider	Recommend
School			
Child social distancing –dismissal of students from schools and school-based activities, and closure of child care programs	Generally not recommended	Consider: ≤ 4 weeks	Recommend: ≤ 12 weeks
–reduce out-of-school contacts and community mixing	Generally not recommended	Consider: ≤ 4 weeks	Recommend: ≤ 12 weeks

What might control a pandemic and protect people?

- Vaccine (when available)
- Antiviral medications
- Community mitigation strategies

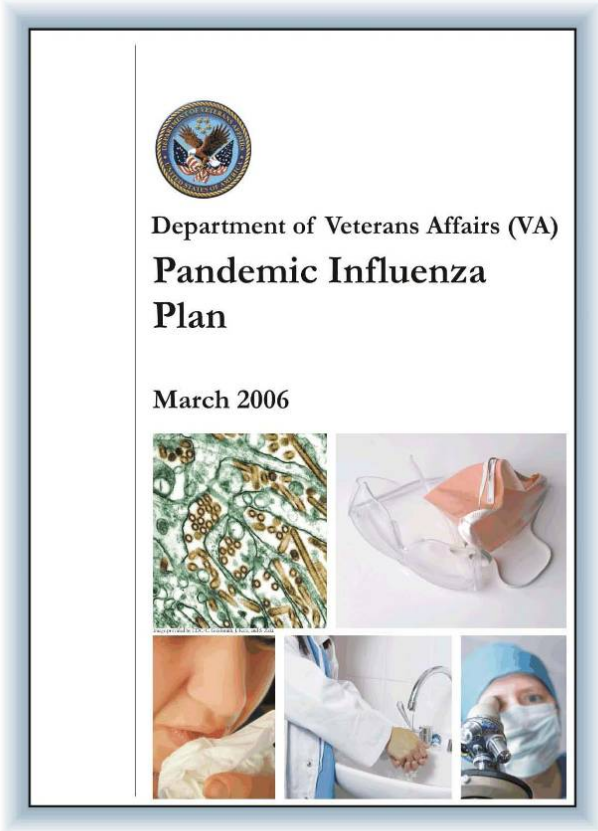
Applied at the right time, to the right individuals, and sustained until no longer needed

How are ‘we’ preparing for a pandemic?

- Federal, state, and local governments, health care organizations, private sector are working on plans
- Health care organizations are planning how to handle a large influx of sick people and continue care for usual patients
- Antiviral drugs are being purchased for stockpiles
- Vaccine production is being improved
- US is working with other countries to improve detection and control of influenza outbreaks that might signal a pandemic

What are VA's goals in an influenza pandemic?

- To protect our staff and the veterans we serve
- To maintain operations
- To cooperate with other organizations
- To communicate with stakeholders



Department of Veterans Affairs (VA) Pandemic Influenza Plan, March 2006, pg. vii. Available: http://www.publichealth.va.gov/Flu/pandemicflu_plan.htm

What is VA's responsibility to the Nation in a pandemic?

- VA is signatory on the National Response Framework (NRF)

- VA has responsibility under 7 of the NRF's 15 Emergency Support functions (ESF's)
  - Public Works & Engineering
  - Emergency Management
  - Mass Care
  - Resource Support
  - Public Health & Medical Services
  - Public Safety and Security
  - Emergency Public Information & External Communications

What is VA's responsibility to the Nation in a pandemic?

- Major VA responsibility is Public Health & Medical Services (ESF8), coordinated by HHS
  - VA responds to ESF8 taskings, "If able to do so..."
- Legal priority for VHA care:
  - Enrolled veterans
  - Department of Defense (DoD) contingency support
  - Community needs/ESF8 taskings

What is VA's responsibility to the Nation in a pandemic?

- Under the White House *Implementation Plan* to the *National Pandemic Strategy* VA is charged to:

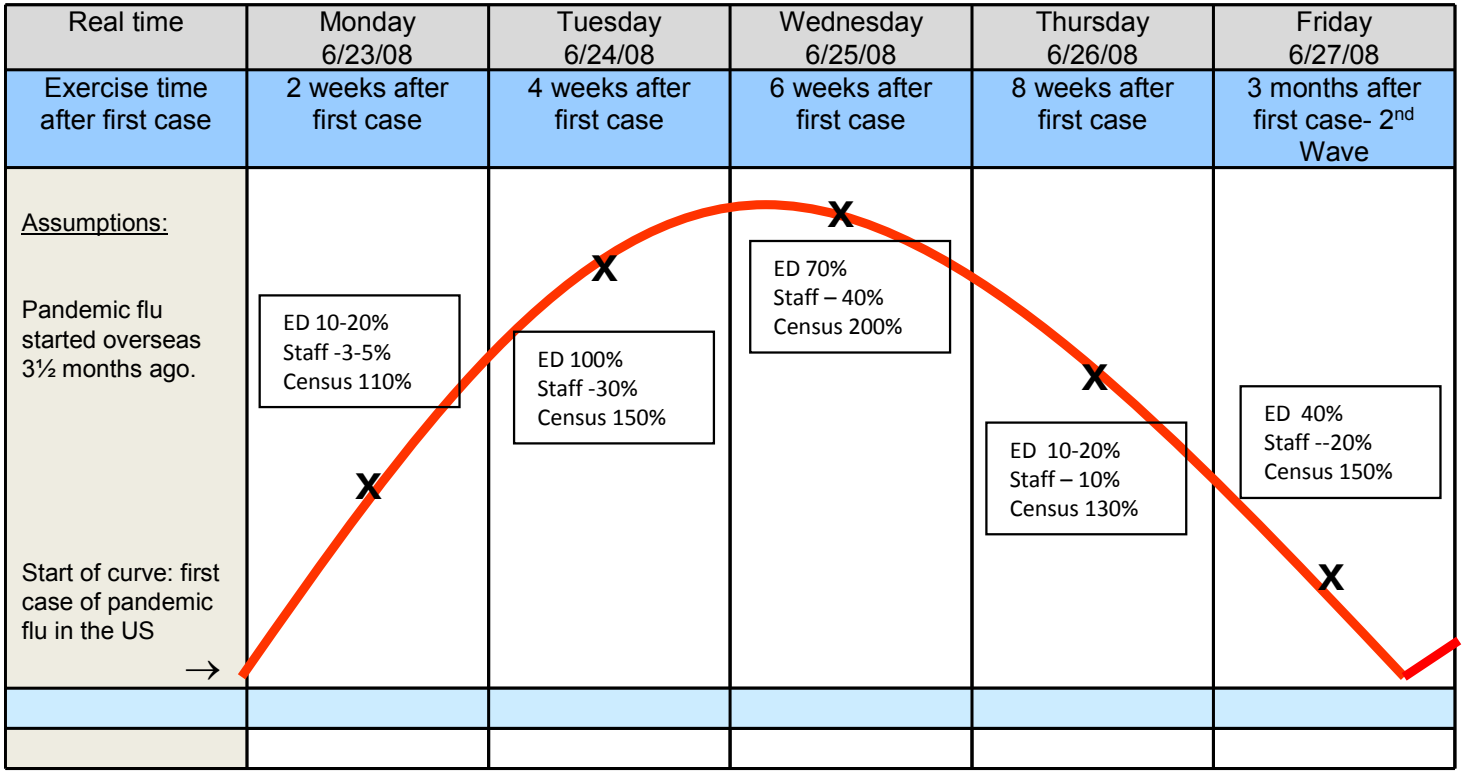
  - Keep VA antiviral stockpiles in the FDA Shelf Life Extension Program
  - Have policies and protocols in place to treat non-veterans
  - Use rapid diagnostic tests for pandemic influenza viral subtypes, when available
  - Be prepared to implement pandemic influenza infection control plans
  - Be prepared to backup DOD and meet ESF8 support roles, if possible
  - Develop and disseminate educational messages to our staff and patients
  - Track, provide statistics, document influenza-like illness among patients and staff

What is VA's responsibility to the Nation in a pandemic?

- VA also must support the Departments of Health and Human Services (HHS), Labor (DOL), Homeland Security (DHS), Defense (DOD) and other agencies on more than 40 secondary actions, for example:
  - Track side effects of pandemic vaccine
  - Help determine when to deploy Public Health Service and Epidemiology Intelligence Service officers
  - Determine distribution plans for critical medical supplies
  - Develop waste handling and environmental clean-up protocols
  - Develop sector-specific (for example, for health care workers) guidance on pandemic flu

How does the next week's exercise fit with pandemic containment goals?

VHA National Exercise: Pandemic Flu – schematic (general)

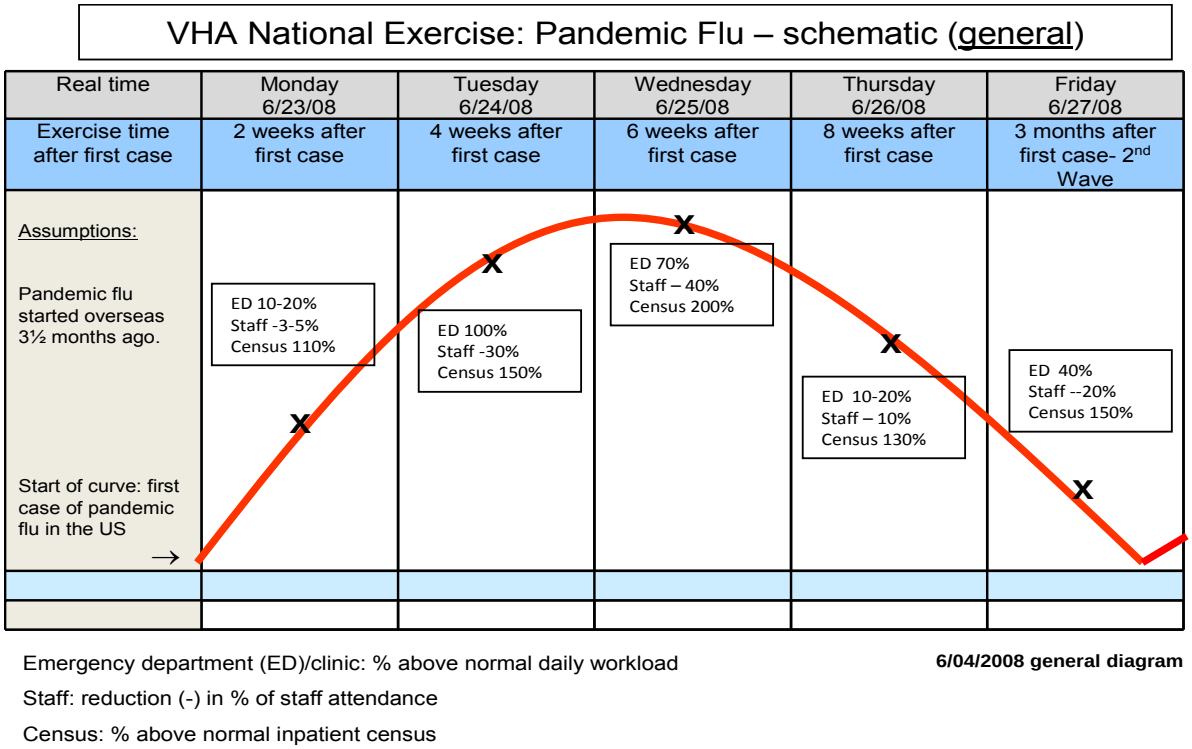


Emergency department (ED)/clinic: % above normal daily workload

Staff: reduction (-) in % of staff attendance

Census: % above normal inpatient census

6/04/2008 general diagram



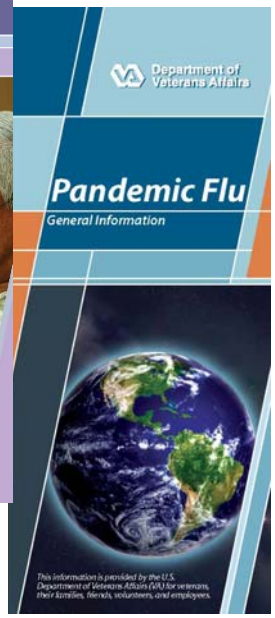
•Tests whether we can achieve overall VA pandemic goals: protecting our staff and patients, maintaining operations, cooperating with other organizations and communicating with stakeholders

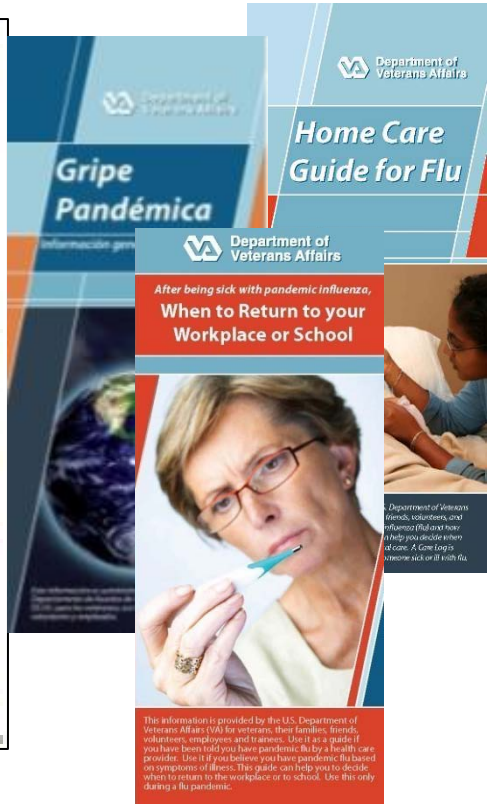
•Tests whether we can do our part to control an influenza pandemics within our communities

•Tests how we can use our assets efficiently, fairly, and ethically

What can you do?

- Be informed
  - Know community mitigation strategies—social distancing, etc
  - Know antiviral medication sources for you and your family
  - Know local vaccine distribution systems for you and your family
- Plan care for sick family members
- Plan for how you might
  - Work from home if needed
  - Care for children if schools were closed
- Practice good habits
  - Stay at home if you are sick
  - Cover your cough
  - Wash your hands frequently
  - Get influenza vaccine as recommended (seasonal every year, pandemic if the time comes)
- Provide your help, advice, and support to your workplace and community





www.publichealth.va.gov/flu/pandemicflu.htm

www.publichealth.va.gov/infectiondontpassiton

www.pandemicflu.gov/